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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 18

Application Number: 09/528,986
Filing Date: March 20, 2000
Appellant(s): SUGITA, NOBUAKI

Daniel A. Geselowitz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/8/2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences that will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct. In the office action, the rejection of the claims contained a typographical error which shows the claims rejected under 35 U.S.C. 102(a). The statute applied to the rejection is properly shown to be under 35 U.S.C. 102(e). The applicant confirms the rejection is made under 35 U.S.C. 102(e) in the brief on appeal, (section VIII.)

(7) Grouping of Claims

The rejection of claims 1-8 stand or fall together as noted in the statement supplied in the appellant's brief.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,136,464	WAKABE et al.	10/2000
JP 07022013A	MATSUSHITA	1/1995

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wakabe et al. (US 6,136,464).

Wakabe et al. (US 6,136,464) teaches a sealed battery comprising an electrode generator element, an external casing, a closure cap including a gas release valve with a thin film cover, and a shielding member between the generator element and the thin film cover of the release valve. Two separate valves are taught. In one embodiment, the valve includes a thin film cover that is penetrated by a cutting device (see figures 4, 8, or 9 and col. 6, line 40 through col. 7). In

this instance, the lead acts as the cover for vent hole formed between the terminals 104 and 105 of figure 9. The cutting device acts as a parallel barrier formed between the electrode assembly and the cover vent. Figure 4 shows packing located under the penetrating assembly. In the second embodiment of figures 14 A-D, an opening is formed in the cover plate of the battery, which is covered with a thin plate and a pressure plate. On the bottom of the opening is a packing material that serves as a barrier formed between the electrode assembly and the cover vent. The packing material is porous which allows for the gas to exit through the vent hole. These materials prevent the electrolyte from directly contacting the thin metal cover.

The embodiments of the reference show all of the elements of the instant claims. The reference may not clearly show the embodiment where the shielding member is a plate set in parallel with the thin film where the thin film is on the exterior of the casing elements. It would be obvious to one skilled in the art at the time the invention was made to combine the embodiments of the invention to include the cutting device as a parallel barrier formed between the electrode assembly and the cover vent wherein the cover vent has a thin metal cover on the exterior of the hole as shown in figure 14. The exterior cover would also prevent the leakage of electrolyte and the cutting device would prevent the direct contact of the electrolyte. Both of these features are found in the embodiments in the reference.

Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07022013 A.

JP 07022013 A teaches a battery comprising an electrode assembly and a vented seal structure which prevents electrolyte from scattering and exiting the battery. The vent includes a battery cover with a gas emission hole that prevents bursting of the battery. On the bottom of the

hole is a space, which is covered by a gasket, which will prevent electrolyte from exiting the vent hole. The '013 reference does not teach the cover hole to be covered with a thin film. It is however, covered with a thin metal terminal contact. This combination allows for the gas to safely exit the cell while preventing the electrolyte from exiting through the exit hole. It would be obvious to one skilled in the art at the time the invention was made to include a shielding member for preventing the liquid electrolyte of a battery from exiting the cell or coming into contact with the casing materials in the event the battery is dropped or struck as the electrolyte may escape the contained casing.

(11) Response to Argument

Applicant's arguments have been fully considered but they are not persuasive.

With regard to the applicant's arguments against the rejection under 35 U.S.C. 102(e) as being anticipated by the Wakabe (US 6,136,464) reference, the sections are addressed accordingly.

Regarding the gas release valve. The applicant argues that the elements of Wakabe do not represent a gas release valve as recited in claim 1. With regard to this argument, the statement brought forth by the applicant is "The cutting device acts as a parallel barrier formed between the electrode assembly and the cover vent." The applicant offers that this statement implies that the cutting device serves to release gas. This is not an assumption as the rupture of the thin film leads to venting as shown in claims 14-15. The cutting device, however, also acts as a parallel barrier for shielding the thin film from the electrolyte in the generator element (for the electrode assembly and electrolyte, see the paragraph bridging col. 8-9.) This configuration is clearly depicted in Figures 4 and 8-10. The vent hole releases gas and the hole is covered by the charge/discharge thin foil. As shown in claims 14-15, the hole is covered to prevent the loss of gas until the thin film is cut.

A second release valve embodiment of Wakabe is shown in figure 14. The applicant admits that a safety valve is shown as constructed by a closure cap and a thin film.

Regarding the thin-film covering the gas release hole. The applicant argues that the thin film covering the gas release valve (figure reference 102 as indicated in figures 4 and 8-10) does not cover the hole in the same way as the claimed invention. The examiner disagrees, as the only limitation set forth in the independent claim is that the thin film covers a gas release hole. This

relationship is clearly shown in the figures. Sealing the hole is further taught in claims 14 and 15. The instant claim does not state that the hole is completely covered, or that the hole is covered on the interior or exterior. It states that the hole is covered. As such, the teachings of the reference read upon a gas release hole covered with a thin film.

Regarding the shielding member. The applicant argues that packing, shown in figure 4, is not between the charge-discharge lead and the electrode assembly. There is no limitation in the claims to a shielding member between a charge-discharge lead and an electrode assembly. In figures 4 and 8-10, the cutting device is the shielding member located between the thin-film and the electrode assembly. This device meets the limitation of the claim. It is further noted that paragraphs 1-2 of column 7 teach the desire for the pressure-sensing device to be resistant to corrosion from the electrolyte and evolved gasses. This device will act as a barrier layer for the elements above the pressure-sensing device.

In figure 14, the packing member functions as a shielding member between the electrode assembly and the thin-film. The examiner disagrees with the applicants assessment of the rectangles shown in Figure 14C. In the figure, the rectangles refer to the top view (labeled element 202) of the battery. It shows the top view of elements 209-211 not a hole in the packing. A continuous, plate-like packing sheet is shown in Figure 13. The only hole in the packing is shown in figure 13 which is used for the battery terminal (note column 9 for these features.) The safety mechanism is described in the paragraph bridging columns 10-11. It clearly shows a laminate of a thin metal plate on a gas discharge opening of the cover plate. The metal is thin with a groove to form a safety device that will rupture upon excessive pressure. Gas must inherently pass to the opening of the safety mechanism in the cover plate to rupture the thin film.

With regard to claims 6-8, corrosive and insulating materials are noted at the top of column 7 which should cover the pressure-sensing device. Further, the polymer packing material of the second embodiment, which both insulates and shields the cover, reads upon the insulating member and the shielding member.

With regard to the applicant's arguments against the rejection under 35 U.S.C. 103(a) as being obvious over the Wakabe (US 6,136,464) reference, the applicant's remarks are addressed accordingly.

The applicant argues that Wakabe does not teach a shielding member located between the thin film and the generator element. The examiner disagrees as shown in the arguments of the previous section. The examiner notes that, "The reference may not clearly show the embodiment where the shielding member is a plate set in parallel with the thin film where the thin film is on the exterior of the casing elements." This is the embodiment of claim 3. It would be obvious to use the cutting device as a parallel barrier for shielding the thin film from the electrolyte in the embodiment of figure 14. One of ordinary skill in the art would understand that he cutting device would be placed below the vent hole to pierce the thin film. The motivation to combine the cutting device with the embodiment of figure 14, including the packing member, is found in the reference, (see col. 11, lines 20-25.) The reference shows that the two embodiments of releasing gas may be used together.

With regard to applicant's arguments against the rejection under 35 U.S.C. 103(a) over JP 07022013 A, the examiner agrees that the reference does not anticipate the instant invention. The rejection applied is based on obviousness of the invention over the prior art. The applicant's remarks are addressed accordingly.

Regarding the gas release valve. The applicant argues that the thin film does not cover the gas release hole in the gas release valve. The applicant's remark does not address the obviousness of the rejection.

Regarding the shielding member. The applicant argues that the gasket of the invention ruptures under pressure and therefore does not anticipate the limitation, "to secure a gas channel from an internal space of the external casing to the gas release hole." The applicant argues that until the gasket of the invention ruptures there is no gas channel. The applicant's remark does not address the obviousness of the rejection.

Regarding the obviousness rejection. The applicant argues "that there is no suggestion in JP '013 A for the limitations of claim 1 with regard to these elements." The applicant argues that the gasket of the invention ruptures under pressure and, therefore, is a valve.

The elements of the claim that are discussed in the arguments read, "the closure cap having a gas release valve that is formed by a gas release hole covered with a thin film," and "a shielding member that is located between the thin film and the generator element to protect the thin film from the electrolyte so as to secure a gas channel from an internal space of the external casing to the gas release hole." JP 07022013 reference does not anticipate this claim.

The JP 07022013 reference does teach an electrode assembly with a vented seal structure that prevents electrolyte from scattering and exiting the battery. The vent includes a battery cover washer with a gas emission hole. This is equivalent to the closure cap of the instant claims. On the bottom of the hole is a gasket that includes a thin-hole portion, 7a, which allow for gas release and prevents electrolyte from contacting the cover washer and exiting the vent hole. This is clearly shown in figure 2. A dashed line shows the gas channel. The '013 reference does not teach the cover hole to be covered with a thin film. It is however, covered with a thin metal terminal contact. The gasket prevents the electrolyte from directly splashing onto the thin metal terminal contact. This combination allows for the gas to safely exit the cell while preventing the electrolyte from exiting through the exit hole.

The applicant argues that one of ordinary skill in the art would not provide the cell with a shielding member to prevent the liquid electrolyte from exiting the cell, however this point is accounted for in the reference as the gasket acts as the shielding member between the electrode assembly and the cover washer. It is a well-described feature of the JP 07022013 invention. Further, the applicant argues that the thin metal does not cover the gas release hole in the gas release valve. This is correct, however, one of ordinary skill in the art would recognize from the teachings of JP 07022013 that the thin terminal covers the hole and forms a gas release path to the exterior of the casing. The covering of the hole with a thin film that may break upon

increased pressure is not necessary in this embodiment as the pressure release in integrally located in the gasket. It is noted that this is not a claimed feature of the invention. The only requirement is that the hole is covered. One of ordinary skill would further recognize that pressure release valves are well described in the art and that the concepts taught in JP 07022013 can be applied to any cap with a gas release hole in order to prevent electrolyte from contacting and corroding the battery.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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November 26, 2002

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